THESIS TITLE A STUDY ON SUBSTITUTION OF URRA FOR SOYBEAN MEAL
PROTEIN IN CASSAVA-BASED SUPPLEMENTING RATION FOR

AUTHOR

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BURMESE LONG TAILED SHEEP.

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ABSTRACT

The objective of this experiment was to investigate the substitution of urea for soybean meal protein in cassava-based supplementing ration for Burmese Long-Tailed sheep. Twenty four weaned lambs with average live weight of 16.00 ± 2.57 kg. were used in a randomized complete block design with four replications and six dietary treatments. In treatments 1, 2, 3, 4 and 5 (T₁, T₂, T₃, T₄ and T₅), the lambs were given the supplemented concentrates (17% protein) at the levels of 1.50% of body weight (BW). Soybean meal was used as a source of protein in the concentrate for T₁; whereas, in T₂, T₃, T₄, and T₅, urea at the levels of 1.50, 2.25, 3.00 and 3.75% were used to replace soybean meal protein in the concentrate, respectively. Treatment 6 (T₆) served as a reference in which lambs were fed only roughage

without concentrate supplementation. Guinea grass, Panicum maximum (7.68% CP) and Ruzi grass, Brachiaria ruziziensis after seed harvest (2.15% CP) were used as the source of roughages in the first 53 days and the latter 59 days of the entire 112 days (16 weeks) experimental period, respectively. The roughages were offered ad libitum to animals in all treatments.

The results showed that the average daily gain among lambs in T1. T2. T3. T4 and T5 did not show significant difference from mean values of 98.70, 91.06, 85.71, 82.59 and 81.92 g/h/d the respectively. However, lambs that were fed only roughage (T6) lost 5.26 g/h/d. The highest feed intake was obtained from lambs in T2 and T1, followed by lambs in T4, T3 and T5, and lowest for lambs in T₆. Total feed dry matter intake for lambs in T₁, T₂, T₃, T₄, T₅ and T₆ were 799.75, 827.30, 714.30, 752.74, 706.93 and 486.85 g/h/d or accounting for the values of 3.61, 3.94, 3.42, 3.53, 3.50 and 3.25% of BW, respectively. There was also no difference in feed conversion (feed/gain) among the lambs in T1, T3, T4 and T5 with the respective corresponding values of 8.23, 9.06, 8.36, 9.12 and 8.75. The digestibilities of nutrients as measured by total collection and internal indicator (using acid insoluble ash, AIA) methods were highly correlated (r = 0.88). Except for the digestibility of protein which was lower in T₅, the digestibilities of various nutrients including dry matter (DM), organic matter (OM), neutral detergent fiber (NDF) and acid detergent fiber (ADF) in T1, T2, T3, T4 and T5, were relatively similar. No difference in carcass characteristics was observed among the lambs in T1, T2, T3, T4 and T5. In

case of production cost, especially the feed cost, it was found that it tended to decrease with the increase levels of urea in the concentrates. The average feed cost for 1 kg. of gain were 28.22, 26.53, 24.77, 24.74 and 22.44 baht for the lambs in T₁, T₂, T₃, T₄ and T₅, respectively.

Based on the results of this experiment, it may be concluded that up to 3.75% of urea can be used to replace soybean meal protein in the supplemented concentrate if the level of supplementation do not exceed 1.50% of BW. This was due to the evidence that the lambs that were supplemented with concentrates containing all levels of urea under this study showed no sign of urea toxicity and their economic traits were almost similar to those supplemented with concentrate containing natural protein from soybean meal.